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FEB 2 9 2008

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AIR QUALITY PROGRAM

Ref: 8P-AR

Brian Gustafson, Administrator
Air Quality Program
Department of Environmental & Natural Resources
Joe Foss Bldg., 532 E. Capital
Pierre, South Dakota 57501

RE: EPA Region 8's Comments on the Draft PSD and Title V Permits for Otter Tail Power Company, (Big Stone Power Plants), Big Stone City, South Dakota

Dear Mr. Gustafson:

On January 29, 2008, EPA received a revised draft Prevention of Significant Deterioration (PSD) permit and a title V Air Quality Renewal permit prepared by the South Dakota Department of Environment & Natural Resources (DENR) on Otter Tail Power Company's updated permit application submitted in June 2006. The updated application is for the construction of a maximum 600 MW net output Pulverized Coal (PC) fired Power Plant (Big Stone II) and for modification of the existing 450 MW cyclone-fired Power Plant (Big Stone I) in Big Stone City, Grant County, South Dakota.

The draft PSD permit establishes Best Available Control Technology (BACT) limits for Big Stone II for all regulated criteria pollutants except Sulfur Dioxide (SO_2) and Nitrogen Dioxide (NOx). The title V Renewal draft permit establishes synthetic minor limits for SO_2 and NOx for both Big Stone I and II.

This letter provides our comments on both the revised draft PSD permit and the title V Renewal permit since DENR submitted both permits concurrently for review for the purposes of this permit action. Our comment period expires on February 29, 2008. We submitted our original comments on this permit action during the public comment period on June 26, 2006, based on the draft permit received on April 18, 2006. We are enclosing a copy of our 2006 comments.

Please find our comments in the enclosure and thank you for the opportunity to comment. If you have any questions, please contact me at (303) 312-6434 or Christopher Ajayi of my staff at (303) 312-6320 or at ajayi.christopher@epa.gov.

Sincerely,

Callie A. Videtich, Director
Air & Radiation Program

Enclosures
cc: Kyrik Rombough (DENR)

Enclosure

EPA Region 8 Comments on Draft PSD and Title V Permits: Otter Tail Power Company's Permit Application for Construction of a new 600 MW PC fired Power Plant and for Modification of the existing 450 MW Cyclone-fired Power Plant in Big Stone City, South Dakota.

Plant wide SO2 Limit

In establishing synthetic minor limits for SO_2 and NOx in the title V permit, DENR presented the same discussions in the title V statement of basis as in the original PSD statement of basis submitted in April 2006. In the current title V statement of basis, DENR states "...sulfur dioxide from Unit #13 will be controlled by a wet flue gas desulfurization system. Otter Tail Power Company (OTPC) will connect the baghouse exhaust emissions from Unit 1 (1975 Babcock & Wilcox Cyclone-fired boiler) to the wet desulfurization system being installed on Unit #13 (new Pulverized Coal-fired boiler)." DENR also stated that OTPC has requested and the State proposes to grant its request to continue to operate Unit #1 when the wet flue gas desulfurization system is shut down for repairs and preventive maintenance provided the plant wide emission limit is not exceeded. (See page 14 of title V statement of basis).

In our June 26, 2006 comment letter, we provided comments under the heading: Permit Condition 5.6; PSD Exemption – Plant wide Sulfur Dioxide (SO_2) limit. We discussed the problems with DENR's analysis in granting OTPC's request and the inability of the corresponding permit Conditions to demonstrate compliance with the established limits (See page 2 of June 26, 2006, EPA comment letter enclosed). Although, DENR's discussion of OTPC's requests and its decision to grant the requests have been relocated to the title V statement of basis from the PSD statement of basis, the concerns we expressed have not been addressed and are still valid. We refer DENR to those comments.

Condition 9.2 which is proposed in accordance with ARSD 74:36:05:16.01(8) specifies a plant wide limit of 13,278 tons of SO_2 per 12-month rolling period from Units #s 1, 2, 3, 4, 13, 14, 15, 25 and 33. DENR uses this plant wide limit as a justification for exempting Unit #s 13, 14, 15, 25 and 33 from PSD review. However, we note that the plant wide limit is the same number established by DENR for the representative period (2003 and 2004) as the average SO_2 emissions from Big Stone I (page 14, title V statement of basis). We also note the uncontrolled potential of Unit #13 (the new PC boiler for Big Stone II) according to OTPC's application and DENR's PSD statement of basis is 56,700 tons per year (page 5, revised PSD statement of basis - table 4-1 – Big Stone Potential Uncontrolled Emissions).

We have several concerns with the proposed plant wide limit. First, given these numbers and the exemptions requested by OTPC and proposed by DENR, in order to credit the contemporaneous emission reduction there should be a more detailed discussion in the statement of basis and associated permit Conditions to document how OTPC proposes to assure compliance with the SO_2 limit. Second, there should be an

analysis to demonstrate that the net emissions from Big Stone II, given the wet desulfurization system control efficiency, coupled with a corresponding reduction from Big Stone I, can be achieved and maintained in order to comply with the plant wide cap. The permit should ensure that the emissions reduction from Big Stone I has been achieved before startup of Big Stone II in order to be creditable for netting. (See 40 C.F.R. 52.21(b)(3)(ii)).

Plant wide NOx Limit

DENR establishes a plant wide cap for both Big Stone I and II at 16,448 tpy but maintains that NOx emissions from Unit #13 (Big Stone II) will be controlled by a selective catalytic reduction unit (SCR) and that NOx emissions from Unit #1 (Big Stone I) will be controlled further by implementing "operational changes" at Big Stone I. DENR needs to elaborate further on what is meant by "operational changes" given the uncontrolled potential limit of Unit #13 of 11,988 tpy (PSD statement of basis – Table 4-1) and the contemporaneous average emissions of 16,448 tpy from Big Stone I.

We recommend DENR perform a similar analysis and include associated permit Conditions for NOx as we recommended for SO2. Such analysis and permit Conditions should detail the control efficiency of the SCR and net emissions from Big Stone II and the corresponding emissions reduction from Big Stone I that would effectively ensure compliance with the plant wide cap. Again, any creditable reductions from Big Stone I must have been achieved before the startup of Big Stone II. (See 40 C.F.R. 52.21(b)(3)(ii))

Startup, Shutdown, or Malfunction BACT Limits

PSD permit Condition 4.8 – BACT during periods of startup, shutdown, and malfunction - although this Condition requires the owner or operator to develop and implement a startup, shutdown, and malfunction plan for Unit #s 13, 14, 15, 25 and 33, the PSD statement of basis (page 16) states "...direct compliance with the proposed emission limits will be based on performance tests. Therefore, during these periods, BACT will be good work and maintenance practices and manufacturer's recommendations to minimize emissions during startup, shutdown, or malfunction events." We recommend that DENR follow EPA's long held policy that BACT emission limitations apply at all times. Under this policy, BACT limits may not be waived during periods of startup, shutdown and malfunction. However, if DENR can demonstrate in its statement of basis that compliance with the primary BACT emission limitations is infeasible during startup, shutdown and malfunction, DENR may establish secondary BACT emission limitations or work practices for those periods. Such secondary BACT emission limitations or work practices must be justified as BACT. The DENR must also ensure compliance with all PSD requirements including compliance with NAAQS and PSD increment provisions.[1]

[1] See In re Prairie State Generating Co., PSD Appeal No. 05-05, at 113-118 (EAB. August 24, 2006), 13 E.A.D.___; In re Tallmadge Generating Station, PSD Appeal No. 02-12, at 28 (EAB, May 21, 2003); In re

In the PSD revised statement of basis on page 16, section 10.2.4, DENR discusses the circumstances under which direct compliance with the proposed emission limits will be based on performance tests because such tests are not conducive to being conducted during startup, shutdown and malfunction. DENR proposes the BACT to be good work practices, maintenance practices and manufacturer's recommendations during startup, shutdown and malfunction. However, PSD draft permit Condition 8.1 establishes the requirement to install continuous emission monitoring systems (CEMS) for opacity, carbon dioxide, sulfur dioxide, nitrogen dioxide, flue gas flow, carbon monoxide, and mercury on unit #13 (i.e., for all pollutants except PM). The Condition also requires the CEMS to monitor and record emissions at all times, including periods of startup, shutdown, malfunctions or emergency Conditions.

As DENR correctly discusses in the PSD statement of basis, the definition of BACT makes it clear that the "work practice" option among other options would be appropriate only if a technological or economic limitations on the application of measurement technology would make the imposition of an emission standard infeasible. See, 40 C.F.R. § 52.21(b)(12). As noted above, Condition 8.1 already requires CEMS for all pollutants except PM. We strongly recommend PM CEMS (see our comment letter of April 26, 2006). With these CEMS measurement tools being available and proposed for installation for all pollutants except PM, it seems that the definition of BACT would call for an emission standard, not a "work practice" option, during periods of startup, shutdown, malfunctions or emergency Conditions, for the CEMS-measured pollutants that are subject to BACT. Therefore, we recommend that DENR require compliance with primary BACT limits or establish secondary BACT limits with compliance demonstration through CEMS as established in Condition 8.1.

If DENR elects to set secondary BACT limits or work practices for PM as BACT during startup, shutdown and malfunction, such limits or work practices must be supported by adequate monitoring and recordkeeping provisions in the PSD permit. Such provisions must contain specific requirements that clearly define the events, establish the time period covered, and include detailed operating parameters that define the start or end of such periods.

We also note that PSD permit Condition 4.0 exempts compliance with BACT limits established in Table 4-1 from periods of startup, shutdown and malfunction. We do not agree with providing a blanket exemption from BACT limits during these periods. DENR should either establish secondary BACT limitations' or work practices that are justified as BACT and define as much as possible within the permit, periods that constitute startup, shutdown and malfunction. Alternatively, the initial BACT emission limits could be applied at all times as we discussed above.

We have similar concerns about Conditions 7.3 and 9.2 in the title V permit. Condition 9.2 requires the plant wide SO_2 limit to include periods of startup, shutdown,

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Indeck-Niles Energy Center, PSD Appeal No. 04-01, at 15-18 (EAB, September. 30 2004); In re Rockgen Energy Center, 8 E.A.D. 536. 554 (EAB 1999)

and malfunction while Condition 7.3 states that these periods are exempt. We recommend revising Condition 7.3 to be consistent with Condition 9.2 and the need to comply with a plant wide cap at all times.

Public Notification of Permit Action

Although the public notice included a statement that "...a person may submit comments or contest the draft permit within 30 days after publication of the notice," the public notice neither contained the publication date nor identified the date the public notice period ended. EPA was notified of the end date of the public notice in the cover letter dated January 25, 2008 sent to the Region. If DENR publishes the public notice in multiple publications on different dates, DENR should identify one end date so that the public is put on notice of when comments are due and can participate accordingly. We urge DENR to include this date in future public notices. Also under title V, without a specified ending date it cannot be determined when EPA's 45 day review period starts, or when citizens may petition the Administrator within 60 days after the expiration of EPA's 45 day review period. (See, 40 CFR §70.8(d)).

Mercury Emissions

Both the proposed title V permit and the proposed PSD permit include provisions for mercury emissions. With respect to the title V permit, we want to alert you that on Feb. 8, 2008, the United States Court of Appeals for the District of Columbia Circuit vacated EPA's Section 112(n) Revision Rule and the Clean Air Mercury Rule (State of New Jersey v. EPA, No. 05-1097). With regard to the Section 112(n) Revision Rule, the court held that EPA must make certain findings specified in § 112(c)(9) before removing any source category from the § 112(c) list of source categories. Because EPA had not made those findings in the Section 112(n) Revision Rule, the court found that EPA could not remove power plants from the § 112(c) list, and therefore vacated the rule. The Court also vacated CAMR, because coal-fired electric generating units are listed sources under § 112 and therefore regulation of existing sources' mercury emissions under § 111 is prohibited. Parties may seek rehearing from the court, and they have until March 24, 2008, to do so. If no request for rehearing is made, the court will issue its mandate in the case on or around March 31, 2008.

The issuance of the mandate effectuates the Court's vacatur of the Section 112(n) Revision Rule and the Clean Air Mercury Rule. Specifically, on the date the mandate issues the vacatur of the Section 112(n) Revision Rule and the Clean Air Mercury Rule will be effective and the requirements of CAA section 112(g) will apply. If rehearing is requested, the court will either grant the rehearing request, or deny the request and issue its mandate approximately one week after that denial. Under section 112(g), no person may begin actual construction or reconstruction of a major source of HAP unless the permitting authority determines on a case-by-case basis that new source MACT requirements will be met. In light of these circumstances, states should carefully evaluate how to proceed with respect to permit provisions for mercury emissions.

The PSD permit Condition 5.2 contains a similar provision to title V permit Condition 6.6. PSD permit Condition 5.2 indicates that:

> "Mercury allowances for Unit #13. In accordance with ARSD 74:36:19, as referenced to 40 CFR 60.4101 through 60.4176, the owner or operator shall comply with all mercury allowances, reporting, monitoring, recordkeeping, and testing and notification requirements of the Mercury Budget Trading Program."

Permit Condition 5.2 in the PSD permit should be removed, unless the State has independent legal authority to include the mercury provisions in a construction permit and that legal authority authorizes the state to issue a single construction permit combining the PSD requirements and other legal requirements. Consistent with section 112(b)(6) of the Clean Air Act, the PSD rules adopted by the State and approved by EPA exclude mercury and other air toxics from the PSD provisions and, therefore, there is no authority in those rules to include such a provision in a permit that purports to be only a PSD permit.[2] If PSD Condition 5.2 is the same Condition as title V Condition 6.6, then it must also be removed since there is no basis for it to remain.

Air Quality Analysis

In our June 26, 2006 comment letter, EPA commented that for existing sources, compliance with short term NAAQS for PM_{10}, SO_2 and CO should be modeled (as "other sources") using maximum _ "actual"_ short term emission rates, while for proposed sources, allowable short term emission rates should be used. This is discussed in Table 8-2 in EPA's Guideline on Air Quality Models (40 CFR Part 51, Appendix W).

In table 10-7 of the PSD revised statement of basis, DENR listed PM_{10} emitting units and their corresponding short term and long term emission rates used in the modeling. The major PM_{10} source is Unit I (Babcock & Wilcox Generator) which has the same emission rate for both short term and long term (1508 lb/hr). EPA notes that typically, a source will have a higher short term emission rate than for longer averaging times unless there are permit restrictions on the short term rates. Therefore, we recommend that the PSD permit establish a limit that would restrict the 24 hour emission rate to 1508 lb/hr since this source (which triggers the minor source baseline date for PM_{10}) consumes 29.98 ug/m^3 of the 30 ug/m^3 PM_{10} 24 hour increment (See, 40 C.F.R §52.21(k)).

Regional Haze BART Requirements

It is our understanding that DENR is in the process of completing revised subject-to-BART modeling for this source. If the proposed limits for PSD will allow Big Stone to avoid potential BART requirements, it should be made clear to the public in the PSD Permit Application Analysis. Please keep in mind that sources can voluntarily take

[2] See, 67 Fed. Reg. 80186, 80239-80240 (December 31, 2002)

enforceable limits that put them below the BART applicability thresholds, however, if the limits are later relaxed the source will become subject to a BART review.